



**BONANZA
CREEK**

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Denver, CO 80202
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(720) 305-0804 fax

Bonanzacrk.com

March 7, 2013

Mr. Lloyd Linnebur
PO Box 369
Byers, Colorado, 80103

RE: Water Supply Sampling

Dear Mr. Linnebur:

Bonanza Creek Energy Operating Company LLC (Bonanza Creek) contracted LT Environmental, Inc. (LTE) to collect a water sample from your water well (permit number 236585) in Township 5N, Range 61W, Section 7, Weld County, Colorado, on January 21, 2013. The sampling activities were conducted per Rule 318A.e.(4) D requirements set forth by the Colorado Oil and Gas Conservation Commission (COGCC).

The water sample was collected in laboratory-supplied containers and submitted to Accutest Laboratories (Accutest) in Wheat Ridge, Colorado and ALS Environmental in Fort Collins, Colorado for analysis of the required water quality parameters. The laboratory results are summarized in Table 1. The laboratory analytical reports are provided as an attachment to this letter.

For comparison purposes, a regulatory limit for each analyte is included where applicable. The regulatory limited listed is the most stringent of the Colorado Primary Drinking Water Standards, Colorado Groundwater Standards, or Colorado Secondary Drinking Water Standards. The regulatory limit presented may not be the applicable standard for your water use.

A copy of this letter and the associated laboratory reports are also being provided to Bob Chesson, Environmental Protection Specialist with the COGCC (303-894-2100 X5112). Bonanza Creek appreciates your cooperation in this sampling effort. If you have any questions, please contact me at 720-440-6113.

Sincerely,

Bonanza Creek Energy Operating Company LLC

Tom Peterson
Engineering Technician

Attachments (2)

cc: Bob Chesson, COGCC

TABLE 1
318A Water Well Sampling Results
Bonanza Creek Energy Operating Company LLC

Sample Name: BCE-Pronghorn-5N61W7-Linnebur

Sample Date: January 21, 2013

Analyte	Result	Regulatory Limit	Units
pH	7.79	6.5-8.5	pH Units
Conductivity	4,530	NA	µmhos/cm
Alkalinity, Bicarbonate	210	NA	mg/L
Alkalinity, Carbonate	<20	NA	mg/L
Bacteria - Iron Reducing	74,500	NA	CFU/ml
Bacteria - Slime Forming	350,000	NA	CFU/ml
Bacteria - Sulfate Reducing	359,000	NA	CFU/ml
Barium	0.017	NA	mg/L
Benzene	<1	5	µg/L
Bromide	1.7	NA	mg/L
Boron	0.33	NA	mg/L
Calcium	230	NA	mg/L
Chloride	200	250	mg/L
Diesel Range Organics	0.16	NA	mg/L
Ethane	<2	NA	µg/L
Ethylbenzene	<1	700	µg/L
Fluoride	2.9	4.0	mg/L
Gasoline Range Organics	<0.1	NA	mg/L
Iron	<0.1	0.3	mg/L
Magnesium	210	NA	mg/L
Manganese	<0.002	0.05	mg/L
Methane	<1	NA	µg/L
Nitrate as N	19	10	mg/L

TABLE 1
318A Water Well Sampling Results
Bonanza Creek Energy Operating Company LLC

Sample Name: BCE-Pronghorn-5N61W7-Linnebur

Sample Date: January 21, 2013

Analyte	Result	Regulatory Limit	Units
Nitrite as N	<0.5	1	mg/L
Phosphorus (total)	<0.05	NA	mg/L
Potassium	8.4	NA	mg/L
Propane	<1	NA	µg/L
Selenium	0.075	0.02	mg/L
Sodium	620	NA	mg/L
Strontium	6.5	NA	mg/L
Sulfate	2,200	250	mg/L
TDS	3,900	500	mg/L
Toluene	<1	1,000	µg/L
Xylene (total)	<1	1	µg/L

Notes:

CFU – colony forming units

ml – milliliter

mg/L – milligrams per Liter (~ parts per million)

NA – not applicable

N – nitrogen

TDS – total dissolved solids

µmhos/cm – micromhos per centimeter

< - less than



02/13/13

Technical Report for

LT Environmental

BCE Pronghorn 5N61W7-Linnebur

Accutest Job Number: D42727

Sampling Date: 01/21/13

Report to:

kkenyon@ltenv.com

Total number of pages in report: 10



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.


Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

Table of Contents

Sections:

1

2

3

4

5

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Summary of Hits	5
Section 4: Sample Results	6
4.1: D42727-1: BCE PRONGHORN 5N61W7-LINNEBUR	7
Section 5: Misc. Forms	8
5.1: Chain of Custody	9

Sample Summary

LT Environmental

BCE Pronghorn 5N61W7-Linnebur

Job No: D42727

Sample Number	Collected Date	Time By	Received	Matrix Code Type	Client Sample ID
D42727-1	01/21/13	12:30 AV	01/21/13	AQ Water	BCE PRONGHORN 5N61W7- LINNEBUR



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: LT Environmental

Job No D42727

Site: BCE Pronghorn 5N61W7-Linnebar

Report Date 1/30/2013 9:32:18 AM

On 01/21/2013, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 1.4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D42727 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method HACH IRB-BART

Matrix AQ	Batch ID: MB134
------------------	------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method HACH SLYM-BART

Matrix AQ	Batch ID: MB135
------------------	------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method HACH SRB-BART

Matrix AQ	Batch ID: MB136
------------------	------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Page 1 of 1

Job Number: D42727
Account: LT Environmental
Project: BCE Pronghorn 5N61W7-Linnebur
Collected: 01/21/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

D42727-1 **BCE PRONGHORN 5N61W7-LINNEBUR**

Iron Reducing Bacteria	74500	25		CFU/ml	HACH IRB-BART
Slime Forming Bacteria	350000	500		CFU/ml	HACH SLYM-BART
Sulfate Reducing Bacteria	359000	200		CFU/ml	HACH SRB-BART



Sample Results

Report of Analysis

Report of Analysis

Page 1 of 1

Client Sample ID: BCE PRONGHORN 5N61W7-LINNEBUR**Lab Sample ID:** D42727-1**Matrix:** AQ - Water**Date Sampled:** 01/21/13**Date Received:** 01/21/13**Percent Solids:** n/a**Project:** BCE Pronghorn 5N61W7-Linnebur

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Iron Reducing Bacteria	74500	25	CFU/ml	1	01/22/13	MM	HACH IRB-BART
Slime Forming Bacteria	350000	500	CFU/ml	1	01/22/13	MM	HACH SLYM-BART
Sulfate Reducing Bacteria	359000	200	CFU/ml	1	01/22/13	MM	HACH SRB-BART

RL = Reporting Limit

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Monahan Street
4036 Youngfield Street Wheat Ridge, Co 80033
TEL 303-425-6021 877-737-4321
FAX 303-425-6021

[illegible]

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D42727: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: **D42727** Client: **LTE** Immediate Client Services Action Required: **No**
 Date / Time Received: **1/21/2013 4:10:00 PM** No. Coolers: **1** Client Service Action Required at Login: **No**
 Project: **BCE PRONGHORN 5N61W7-LINNEBAR** Airbill #s: **HD**

Cooler Security Y or N Y or N
 1. Custody Seals Present: ☒ ☐ 3. COC Present: ☒ ☐
 2. Custody Seals Intact: ☒ ☐ 4. Smpl Dates/Time OK: ☒ ☐

Cooler Temperature Y or N
 1. Temp criteria achieved: ☒ ☐
 2. Cooler temp verification: Infrared gun
 3. Cooler media: Ice (bag)

Quality Control Preservation Y or N N/A
 1. Trip Blank present / cooler: ☐ ☐
 2. Trip Blank listed on COC: ☐ ☐
 3. Samples preserved properly: ☒ ☐
 4. VOCs headspace free: ☐ ☐ ☒

Sample Integrity - Documentation Y or N
 1. Sample labels present on bottles: ☒ ☐
 2. Container labeling complete: ☒ ☐
 3. Sample container label / COC agree: ☒ ☐

Sample Integrity - Condition Y or N
 1. Sample recvd within HT: ☒ ☐
 2. All containers accounted for: ☒ ☐
 3. Condition of sample: Intact

Sample Integrity - Instructions Y or N N/A
 1. Analysis requested is clear: ☒ ☐
 2. Bottles received for unspecified tests: ☐ ☒
 3. Sufficient volume rec'd for analysis: ☒ ☐
 4. Compositing instructions clear: ☒ ☐ ☒
 5. Filtering instructions clear: ☐ ☐ ☒

Comments



1301188

GC/MS Volatiles:

The sample was analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C.

All acceptance criteria were met.

Dissolved Gasses:

The sample was prepared and analyzed according to method RSK-175 procedures and the current revision of SOP 449.

All acceptance criteria were met.

GRO:

The sample was analyzed following the current revision of SOP 425 generally based on SW-846 Methods 8000C and 8015D. The procedures are based on these methods because SW-846 does not have a specific method for TVPH or gasoline range organics. The only true modification from these methods is that TVPH is a multicomponent mixture and is quantitated by summing the entire range, rather than individual peaks. The carbon range integrated in this test extends from C₆ to C₁₀.

All acceptance criteria were met.

DRO:

The sample was analyzed following the current revision of SOP 406 generally based on SW-846 Method 8000C and Method 8015D. The procedures are based on this general method because SW-846 does not have a specific method for total extractable petroleum hydrocarbons (TEPH) or diesel range organics. The only true modification from this method is that TEPH is a multicomponent mixture and is quantitated by summing the entire range, rather than individual peaks.

All acceptance criteria were met.

Metals:

The sample was analyzed following SW-846, 3rd Edition procedures. Analysis by ICPMS followed method 200.8 and the current revision of SOP 827.

The sample was to be analyzed for dissolved metals. The sample was filtered through a 0.45 micron filter and preserved with nitric acid to a pH less than two prior to analysis.

All acceptance criteria were met.



Inorganics:

The sample was analyzed following MCAWW, EMSL, and Standard Method procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Alkalinity	SM2320B	1106
Bicarbonate	SM2320B	1106
Carbonate	SM2320B	1106
pH	SM4500-H ⁺ B	1126
Specific conductance	SM2510B	1128
Total phosphorus	365.2	1119
TDS	SM2540C	1101
Bromide	300.0 Revision 2.1	1113
Chloride	300.0 Revision 2.1	1113
Nitrate as N	300.0 Revision 2.1	1113
Nitrite as N	300.0 Revision 2.1	1113
Nitrate/nitrite as N	300.0 Revision 2.1	1113
Sulfate	300.0 Revision 2.1	1113

The sample was prepared and analyzed within the established hold time for each analysis with the exception of specific conductance. The sample was analyzed outside of the standard ALS holding time.

A matrix spike (MS) and matrix spike duplicate (MSD) were prepared and analyzed with the total phosphorus, bromide, chloride, nitrate as N, nitrite as N, and sulfate batches. All guidance criteria for precision and accuracy were met with the following exceptions:

<u>Analyte</u>	<u>Sample ID</u>
Total phosphorus	1301188-1MS & MSD
Bromide	1301188-1MS & MSD
Fluoride	1301188-1MS & MSD
Nitrate as N	1301188-1MS & MSD

The native sample results are flagged. The laboratory control sample indicates that the procedure was in control.

Matrix spike recoveries could not be evaluated for the following analytes:

<u>Analyte</u>	<u>Sample ID</u>
Chloride	1301188-1MS & MSD
Sulfate	1301188-1MS & MSD

The chloride and sulfate concentrations in the native sample were above the analytical range; therefore accurate quantitation of MS/MSD recoveries were not possible. The LCS, ICV, and CCV results indicate the procedure was in control for these analytes.

All remaining acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1301188

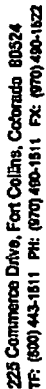
Client Name: LT Environmental, Inc.

Client Project Name: BCE Pronghorn 5NG1W7-Linnebur

Client Project Number: 034512001.04

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
BCE Pronghorn 5N61W7 - Linne	1301188-1		WATER	21-Jan-13	12:30



Form 2021a

Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

4 of 19

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-NaHSO₄ 7-Other 8-4 degrees C 9-5035

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: LTE

Workorder No: 1301188

Project Manager: ARW

Initials: LAS Date: 1/21/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	NO
2. Are custody seals on shipping containers intact?	NONE	YES	NO
3. Are Custody seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		YES	NO
5. Are the COC and bottle labels complete and legible?		YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		YES	NO
12. Are all samples within holding times for the requested analyses?		YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	NO
16. Were the samples shipped on ice?		YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4 RAD ONLY		YES	NO
Cooler #: 1			
Temperature (°C): 4.2			
No. of custody seals on cooler: 0			
External µR/hr reading: N/A			
Background µR/hr reading: 11			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 1/21/13

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: LT Environmental, Inc.

Date: 26-Feb-13

Project: 034512001.04 BCE Pronghorn 5N61W7-Linnebur

Work Order: 1301188

Sample ID: BCE Pronghorn 5N61W7 - Linnebur

Lab ID: 1301188-1

Legal Location:

Matrix: WATER

Collection Date: 1/21/2013 12:30

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE						
			SM2320B		Prep Date: 1/28/2013	PrepBy: JBM
BICARBONATE AS CaCO ₃	210		20	MG/L	1	1/28/2013
CARBONATE AS CaCO ₃	ND		20	MG/L	1	1/28/2013
TOTAL ALKALINITY AS CaCO ₃	210		20	MG/L	1	1/28/2013
DIESEL RANGE ORGANICS						
			SW8015M		Prep Date: 1/22/2013	PrepBy: JAC
Diesel Range Organics	0.16	J	0.5	MG/L	1	1/29/2013 18:17
Surr: O-TERPHENYL	85		57-132	%REC	1	1/29/2013 18:17
DISSOLVED GASSES						
			RSK175		Prep Date: 1/29/2013	PrepBy: JFN
METHANE	ND		1	UG/L	1	1/29/2013 15:39
ETHANE	ND		2	UG/L	1	1/29/2013 15:39
PROPANE	ND		1	UG/L	1	1/29/2013 15:39
GASOLINE RANGE ORGANICS						
			SW8015		Prep Date: 1/22/2013	PrepBy: JFN
GASOLINE RANGE ORGANICS	ND		0.1	MG/L	1	1/22/2013 12:26
Surr: 2,3,4-TRIFLUOROTOLUENE	97		74-129	%REC	1	1/22/2013 12:26
GC/MS VOLATILES						
			SW8260_25		Prep Date: 1/22/2013	PrepBy: SDW
BENZENE	ND		1	UG/L	1	1/22/2013 15:00
ETHYLBENZENE	ND		1	UG/L	1	1/22/2013 15:00
M+P-XYLENE	ND		1	UG/L	1	1/22/2013 15:00
O-XYLENE	ND		1	UG/L	1	1/22/2013 15:00
TOLUENE	ND		1	UG/L	1	1/22/2013 15:00
TOTAL XYLENES	ND		1	UG/L	1	1/22/2013 15:00
Surr: 4-BROMOFLUOROBENZENE	108		85-115	%REC	1	1/22/2013 15:00
Surr: DIBROMOFLUOROMETHANE	89		84-118	%REC	1	1/22/2013 15:00
Surr: TOLUENE-D8	89		85-115	%REC	1	1/22/2013 15:00
ION CHROMATOGRAPHY						
			EPA300.0		Prep Date: 1/22/2013	PrepBy: EAL
FLUORIDE	2.9	N	0.5	MG/L	5	1/22/2013 13:41
CHLORIDE	200		10	MG/L	50	1/22/2013 14:36
NITRITE AS N	ND		0.5	MG/L	5	1/22/2013 13:41
BROMIDE	1.7	N	1	MG/L	5	1/22/2013 13:41
NITRATE AS N	19	N	1	MG/L	5	1/22/2013 13:41
SULFATE	2200		50	MG/L	50	1/22/2013 14:36
NITRATE/NITRITE AS N	19		0.1	MG/L	1	1/22/2013 13:41
METALS BY 200.8						
			EPA200.8		Prep Date: 1/24/2013	PrepBy: BAS
BORON	0.33		0.05	MG/L	10	1/28/2013 12:25
BARIUM	0.017		0.001	MG/L	10	1/28/2013 12:25
CALCIUM	230		1	MG/L	10	1/28/2013 12:25
IRON	ND		0.1	MG/L	10	1/28/2013 12:25
POTASSIUM	8.4		1	MG/L	10	1/28/2013 12:25
MAGNESIUM	210		0.1	MG/L	10	1/28/2013 12:25
MANGANESE	ND		0.002	MG/L	10	1/28/2013 12:25
SODIUM	620		1	MG/L	10	1/28/2013 12:25

ALS Environmental -- FC
SAMPLE SUMMARY REPORT
Client: LT Environmental, Inc.

Date: 26-Feb-13

Project: 034512001.04 BCE Pronghorn 5NG1W7-Linnebur

Work Order: 1301188

Sample ID: BCE Pronghorn 5N61W7 - Linnebur

Lab ID: 1301188-1

Legal Location:
Matrix: WATER

Collection Date: 1/21/2013 12:30

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SELENIUM	0.075		0.001	MG/L	10	1/28/2013 12:25
STRONTIUM	6.5		0.001	MG/L	10	1/28/2013 12:25
PH			SM4500-H		Prep Date: 1/25/2013	PrepBy: JBM
PH	7.79		0.1	pH	1	1/25/2013
SPECIFIC CONDUCTANCE IN WATER			EPA120.1		Prep Date: 2/15/2013	PrepBy: JBM
SPECIFIC CONDUCTIVITY	4530		1	umhos/cm	1	2/15/2013
TOTAL DISSOLVED SOLIDS			SM2540C		Prep Date: 1/22/2013	PrepBy: JBM
TOTAL DISSOLVED SOLIDS	3900		80	MG/L	1	1/23/2013
TOTAL PHOSPHORUS AS P			EPA365.2		Prep Date: 1/30/2013	PrepBy: JBM
TOTAL PHOSPHORUS	ND		0.05	MG/L	1	1/30/2013

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client:	LT Environmental, Inc.	Date:	26-Feb-13
Project:	034512001.04 BCE Pronghorn 5NG1W7-Linnebur	Work Order:	1301188
Sample ID:	BCE Pronghorn 5N61W7 - Linnebur	Lab ID:	1301188-1
Legal Location:		Matrix:	WATER
Collection Date:	1/21/2013 12:30	Percent Moisture:	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.	M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.	L - LCS Recovery below lower control limit.
Y2 - Chemical Yield outside default limits.	H - LCS Recovery above upper control limit.
W - DER is greater than Warning Limit of 1.42	P - LCS, Matrix Spike Recovery within control limits.
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.	N - Matrix Spike Recovery outside control limits
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.	NC - Not Calculated for duplicate results less than 5 times MDC
G - Sample density differs by more than 15% of LCS density.	B - Analyte concentration greater than MDC.
D - DER is greater than Control Limit	B3 - Analyte concentration greater than MDC but less than Requested MDC.
M - Requested MDC not met.	

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client:	LT Environmental, Inc.	Date:	26-Feb-13
Project:	034512001.04 BCE Pronghorn 5N61W7-Linnebur	Work Order:	1301188
Sample ID:	BCE Pronghorn 5N61W7 - Linnebur	Lab ID:	1301188-1
Legal Location:		Matrix:	WATER
Collection Date:	1/21/2013 12:30	Percent Moisture:	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<p>G - A pattern resembling gasoline was detected in this sample.</p> <p>D - A pattern resembling diesel was detected in this sample.</p> <p>M - A pattern resembling motor oil was detected in this sample.</p> <p>C - A pattern resembling crude oil was detected in this sample.</p> <p>4 - A pattern resembling JP-4 was detected in this sample.</p> <p>5 - A pattern resembling JP-5 was detected in this sample.</p> <p>H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.</p> <p>L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.</p> <p>Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:</p> <ul style="list-style-type: none"> - gasoline - JP-8 - diesel - mineral spirits - motor oil - Stoddard solvent - bunker C 						

ALS Environmental -- FC

Client: LT Environmental, Inc.

Work Order: 1301188

Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

Date: 2/26/2013 9:12:

QC BATCH REPORT

Batch ID: HC130129-1-1 Instrument ID: MEE-1 Method: RSK175

LCS	Sample ID: HC130129-1			Units: UG/L			Analysis Date: 1/29/2013 15:33			
Client ID:	Run ID: HC130129-1A						Prep Date: 1/29/2013		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	144	1	142		102	80-120			25	
ETHANE	269	2	267		101	80-120			25	
PROPANE	387	1	391		99	80-120			25	

LCSD	Sample ID: HC130129-1				Units: UG/L	Analysis Date: 1/29/2013 15:52				
Client ID:	Run ID: HC130129-1A				Prep Date: 1/29/2013			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	162	1	142		114	80-120	144	11	25	
ETHANE	301	2	267		113	80-120	269	11	25	
PROPANE	435	1	391		111	80-120	387	12	25	

MB	Sample ID: HC130129-1				Units: UG/L		Analysis Date: 1/29/2013 15:35			
Client ID:	Run ID: HC130129-1A						Prep Date: 1/29/2013		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	ND	1								
ETHANE	ND	2								
PROPANE	ND	1								

MS	Sample ID: 1301188-1				Units: UG/L		Analysis Date: 1/29/2013 15:44			
Client ID: BCE Pronghorn 5N61W7 - Linnebur		Run ID: HC130129-1A				Prep Date: 1/29/2013		DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	125	1	142	1	88	70-130			25	
ETHANE	235	2	267	2	88	70-130			25	
PROPANE	337	1	391	1	86	70-130			25	

The following samples were analyzed in this batch:

1301188-1

Client: LT Environmental, Inc.
 Work Order: 1301188
 Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

QC BATCH REPORT

Batch ID: EX130122-3-1 Instrument ID: FUELS-1 Method: SW8015M

LCS	Sample ID: EX130122-3				Units: MG/L		Analysis Date: 1/29/2013 17:11			
Client ID:	Run ID: HCD130129-3A						Prep Date: 1/22/2013		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	10.1	0.5	10		101	36-150			20	
Surr: O-TERPHENYL	1.15		1.25		92	57-132				

LCSD		Sample ID: EX130122-3				Units: MG/L		Analysis Date: 1/29/2013 17:44		
Client ID:		Run ID: HCD130129-3A				Prep Date: 1/22/2013		DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	10	0.5	10		100	36-150	10.1	1	20	
Surr: O-TERPHENYL	1.17		1.25		94	57-132		2		

MB		Sample ID: EX130122-3			Units: MG/L		Analysis Date: 1/29/2013 16:38			
Client ID:		Run ID: HCD130129-3A					Prep Date: 1/22/2013		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	ND	0.5								
Surr: O-TERPHENYL	1.08		1.25		86	57-132				

MS Sample ID: 1301188-1			Units: MG/L			Analysis Date: 1/29/2013 18:49				
Client ID: BCE Pronghorn 5N61W7 - Linnebur			Run ID: HCD130129-3A			Prep Date: 1/22/2013		DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	10.1	0.5	10	0.16	99	36-150			20	
Surr: O-TERPHENYL	1.11		1.25		89	57-132				

MSD		Sample ID: 1301188-1			Units: MG/L		Analysis Date: 1/29/2013 19:22			
Client ID: BCE Pronghorn 5N61W7 - Linnebur		Run ID: HCD130129-3A					Prep Date: 1/22/2013		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	10.3	0.5	10	0.16	102	36-150	10.1	2	20	
Surr: O-TERPHENYL	1.18		1.25		94	57-132		6		

The following samples were analyzed in this batch:

1301188-1

Client: LT Environmental, Inc.
 Work Order: 1301188
 Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

QC BATCH REPORT

Batch ID: HCG130122-1-1 Instrument ID: FUELS-1 Method: SW8015

LCS Sample ID: HCG130122-1 Units: MG/L Analysis Date: 1/22/2013 10:59

Client ID: Run ID: HCG130122-1A Prep Date: 1/22/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	0.997	0.1	1		100	79-118			20	
Surr: 2,3,4-TRIFLUOROTOLUEN	0.102		0.1		102	74-129				

LCSD Sample ID: HCG130122-1 Units: MG/L Analysis Date: 1/22/2013 13:52

Client ID: Run ID: HCG130122-1A Prep Date: 1/22/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	0.963	0.1	1		96	79-118	0.997	3	20	
Surr: 2,3,4-TRIFLUOROTOLUEN	0.101		0.1		101	74-129		1		

MB Sample ID: HCG130122-1 Units: MG/L Analysis Date: 1/22/2013 11:28

Client ID: Run ID: HCG130122-1A Prep Date: 1/22/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	ND	0.1								
Surr: 2,3,4-TRIFLUOROTOLUEN	0.0975		0.1		97	74-129				

MS Sample ID: 1301188-1 Units: MG/L Analysis Date: 1/22/2013 12:55

Client ID: BCE Pronghorn 5N61W7 - Linnebur Run ID: HCG130122-1A Prep Date: 1/22/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	0.963	0.1	1	0.1	96	79-118			30	
Surr: 2,3,4-TRIFLUOROTOLUEN	0.101		0.1		101	74-129				

MSD Sample ID: 1301188-1 Units: MG/L Analysis Date: 1/22/2013 13:23

Client ID: BCE Pronghorn 5N61W7 - Linnebur Run ID: HCG130122-1A Prep Date: 1/22/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	1.01	0.1	1	0.1	101	79-118	0.963	5	30	
Surr: 2,3,4-TRIFLUOROTOLUEN	0.101		0.1		101	74-129		0		

The following samples were analyzed in this batch:

1301188-1

Client: LT Environmental, Inc.
 Work Order: 1301188
 Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

QC BATCH REPORT

Batch ID: IP130124-1-2 Instrument ID: ICPMS2 Method: EPA200.8

LCS Sample ID: FM130121-1 Units: MG/L Analysis Date: 1/28/2013 12:11
 Client ID: Run ID: IM130128-10A2 Prep Date: 1/24/2013 DF: 10

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	0.0967	0.001	0.1		97	85-115			20	
BORON	0.88	0.05	1		88	85-115			20	
CALCIUM	9.23	1	10		92	85-115			20	
IRON	4.81	0.1	5		96	85-115			20	
MAGNESIUM	8.94	0.1	10		89	85-115			20	
MANGANESE	0.189	0.002	0.2		94	85-115			20	
POTASSIUM	4.85	1	5		97	85-115			20	
SELENIUM	0.0961	0.001	0.1		96	85-115			20	
SODIUM	9.83	1	10		98	85-115			20	
STRONTIUM	0.0947	0.001	0.1		95	85-115			20	

MB Sample ID: F130121-1 Units: MG/L Analysis Date: 1/28/2013 12:08
 Client ID: Run ID: IM130128-10A2 Prep Date: 1/24/2013 DF: 10

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	ND	0.001								
BORON	ND	0.05								
CALCIUM	ND	1								
IRON	ND	0.1								
MAGNESIUM	ND	0.1								
MANGANESE	ND	0.002								
POTASSIUM	ND	1								
SELENIUM	ND	0.001								
SODIUM	ND	1								
STRONTIUM	ND	0.001								

The following samples were analyzed in this batch:

1301188-1

Client: LT Environmental, Inc.
 Work Order: 1301188
 Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

QC BATCH REPORT

Batch ID: VL130122-3-5 Instrument ID: HPV1 Method: SW8260_25

LCS	Sample ID: VL130122-3				Units: %REC		Analysis Date: 1/22/2013 11:55			
Client ID:	Run ID: VL130122-3A						Prep Date: 1/22/2013		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Surr. 4-BROMOFLUOROBENZE	27.2		25		109	85-115				
Surr. DIBROMOFLUOROMETHA	22.5		25		90	84-118				
Surr. TOLUENE-D8	22.6		25		90	85-115				
BENZENE	10.9	1	10		109	83-117			20	
ETHYLBENZENE	9.84	1	10		98	81-113			20	
M+P-XYLENE	17.3	1	20		86	82-115			20	
O-XYLENE	8.84	1	10		88	81-115			20	
TOLUENE	10	1	10		100	82-113			20	

LCSD		Sample ID: VL130122-3			Units: %REC		Analysis Date: 1/22/2013 12:17			
Client ID:		Run ID: VL130122-3A					Prep Date: 1/22/2013		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Surr. 4-BROMOFLUOROBENZE	27.4		25		110	85-115		1		
Surr. DIBROMOFLUOROMETHA	22.5		25		90	84-118		0		
Surr. TOLUENE-D8	22.3		25		89	85-115		1		
BENZENE	10.9	1	10		109	83-117	10.9	0	20	
ETHYLBENZENE	9.82	1	10		98	81-113	9.84	0	20	
M+P-XYLENE	17.6	1	20		88	82-115	17.3	2	20	
O-XYLENE	8.91	1	10		89	81-115	8.84	1	20	
TOLUENE	10.3	1	10		103	82-113	10	3	20	

MB		Sample ID: VL130122-3				Units: %REC		Analysis Date: 1/22/2013 12:40		
Client ID:		Run ID: VL130122-3A				Prep Date: 1/22/2013		DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZE	26.4		25		106	85-115				
Surr: DIBROMOFLUOROMETHA	22.8		25		91	84-118				
Surr: TOLUENE-D8	22.6		25		91	85-115				
BENZENE	ND	1								
ETHYLBENZENE	ND	1								
M+P-XYLENE	ND	1								
O-XYLENE	ND	1								
TOLUENE	ND	1								
TOTAL XYLENES	ND	1								

The following samples were analyzed in this batch:

1301188-1

Client: LT Environmental, Inc.
Work Order: 1301188
Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

QC BATCH REPORT

Batch ID: AK130128-1-2 Instrument ID: NONE Method: SM2320B

LCS Sample ID: AK130128-1 Units: MG/L Analysis Date: 1/28/2013
Client ID: Run ID: ak130128-1a Prep Date: 1/28/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	99.6	5	100		100	85-115			15	

MB Sample ID: AK130128-1 Units: MG/L Analysis Date: 1/28/2013
Client ID: Run ID: ak130128-1a Prep Date: 1/28/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BICARBONATE AS CaCO3	ND	5								
CARBONATE AS CaCO3	ND	5								
TOTAL ALKALINITY AS CaCO3	ND	5								

The following samples were analyzed in this batch: 1301188-1

Client: LT Environmental, Inc.
 Work Order: 1301188
 Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

QC BATCH REPORT

Batch ID: IC130122-1-1 Instrument ID: IC Method: EPA300.0

LCS Sample ID: IC130122-1 Units: MG/L Analysis Date: 1/22/2013 10:22

Client ID: Run ID: IC130122-1A2 Prep Date: 1/22/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	2.46	0.1	2.5		98	90-110			15	
CHLORIDE	4.99	0.2	5		100	90-110			15	
NITRITE AS N	1.99	0.1	2		100	90-110			15	
BROMIDE	5.17	0.2	5		103	90-110			15	
NITRATE AS N	4.91	0.2	5		98	90-110			15	
SULFATE	25.7	1	25		103	90-110			15	

MB Sample ID: IC130122-1 Units: MG/L Analysis Date: 1/22/2013 10:33

Client ID: Run ID: IC130122-1A2 Prep Date: 1/22/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	ND	0.1								
CHLORIDE	ND	0.2								
NITRITE AS N	ND	0.1								
BROMIDE	ND	0.2								
NITRATE AS N	ND	0.2								
SULFATE	ND	1								

MS Sample ID: 1301188-1 Units: MG/L Analysis Date: 1/22/2013 13:52

Client ID: BCE Pronghorn 5N61W7 - Linnebur Run ID: IC130122-1A2 Prep Date: 1/22/2013 DF: 5

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	15.2	0.5	10	2.9	123	85-115			15	N
NITRITE AS N	9.61	0.5	10	0.5	96	85-115			15	
BROMIDE	31.2	1	25	1.7	118	85-115			15	N
NITRATE AS N	48.6	1	25	19	120	85-115			15	N

MSD Sample ID: 1301188-1 Units: MG/L Analysis Date: 1/22/2013 14:03

Client ID: BCE Pronghorn 5N61W7 - Linnebur Run ID: IC130122-1A2 Prep Date: 1/22/2013 DF: 5

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	15.5	0.5	10	2.9	125	85-115	15.2	2	15	N
NITRITE AS N	9.54	0.5	10	0.5	95	85-115	9.61	1	15	
BROMIDE	31.5	1	25	1.7	119	85-115	31.2	1	15	N
NITRATE AS N	48.9	1	25	19	121	85-115	48.6	1	15	N

The following samples were analyzed in this batch:

1301188-1

Client: LT Environmental, Inc.
 Work Order: 1301188
 Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

QC BATCH REPORT

Batch ID: PO130130-1-1 Instrument ID: Spec Method: EPA365.2

LCS Sample ID: PO130130-1 Units: MG/L Analysis Date: 1/30/2013
 Client ID: Run ID: po130130-1a Prep Date: 1/30/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.53	0.05	0.5		106	80-120			20	

MB Sample ID: PO130130-1 Units: MG/L Analysis Date: 1/30/2013
 Client ID: Run ID: po130130-1a Prep Date: 1/30/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	ND	0.05								

MS Sample ID: 1301188-1 Units: MG/L Analysis Date: 1/30/2013
 Client ID: BCE Pronghorn 5N61W7 - Linnebur Run ID: po130130-1a Prep Date: 1/30/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.315	0.05	0.25	0.05	126	80-120			20	N

MSD Sample ID: 1301188-1 Units: MG/L Analysis Date: 1/30/2013
 Client ID: BCE Pronghorn 5N61W7 - Linnebur Run ID: po130130-1a Prep Date: 1/30/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.308	0.05	0.25	0.05	123	80-120	0.315	2	20	N

The following samples were analyzed in this batch:

1301188-1

Client: LT Environmental, Inc.
Work Order: 1301188
Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

QC BATCH REPORT

Batch ID: SC130215-1-1 **Instrument ID:** pH-1 **Method:** EPA120.1

DUP **Sample ID:** 1301188-1 **Units:** umhos/cm **Analysis Date:** 2/15/2013
Client ID: BCE Pronghorn 5N61W7 - Linnebur **Run ID:** SC130215-1A **Prep Date:** 2/15/2013 **DF:** 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	4510	1					4530	0	10	

The following samples were analyzed in this batch:

1301188-1

Client: LT Environmental, Inc.
Work Order: 1301188
Project: 034512001.04 BCE Pronghorn 5NG1W7-Linne

QC BATCH REPORT

Batch ID: TD130122-1-3 **Instrument ID:** Balance **Method:** SM2540C

LCS **Sample ID:** TD130122-1 **Units:** MG/L **Analysis Date:** 1/23/2013
Client ID: **Run ID:** td130123-1a **Prep Date:** 1/22/2013 **DF:** 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	411	20	400		103	85-115			5	

MB **Sample ID:** TD130122-1 **Units:** MG/L **Analysis Date:** 1/23/2013
Client ID: **Run ID:** td130123-1a **Prep Date:** 1/22/2013 **DF:** 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	ND	20								

The following samples were analyzed in this batch:

1301188-1